

III. *On the Pulvilli of Flies.* By WILLIAM SPENCE, Esq.
F.R.S., &c.

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IN a note at p. 261, vol. ii. of the new edition of our "Introduction to Entomology," on the pulvilli of the common house-fly, I have detailed the observations which led me to the conclusion, that if the hypothesis of Mr. Blackwall, which refers the power possessed by this insect of walking up polished vertical surfaces or horizontal ones with its back downwards, to the exudation of a glutinous secretion from the ends of the hairs of its pulvilli, be proved to be correct, it will probably be found that the process of rubbing its tarsi together, which it constantly exhibits, is not, as has been formerly supposed, one of mere general cleanliness, but a very important operation of its economy, destined to keep the ends of the hairs of its pulvilli free from every particle of dust or moisture which might impede their adhesive action. My attention, since leaving England for Italy, has been frequently directed to this subject; and all my observations confirm the probability of this supposition being well founded, not merely in the case of the house-fly, but of Dipterous and Hymenopterous insects generally, and of many Coleopterous species, a large proportion of which I have seen employ similar manœuvres, apparently for a similar purpose. It would be tedious, as the results are so uniform, to give any detailed account of these observations, but I may mention one of them, which struck me more forcibly than the rest. I have repeatedly seen flies, after rubbing together their two fore tarsi and pulvilli, put down on the surface on which they were standing, first one of the pulvilli, and then the other, and pull at each, as if trying if they would adhere properly: apparently finding from the trial that they would not, again briskly have recourse to the former curry-combing process, repeating these alternate brushings and trials five or six times, and for the space of full two minutes, until having seemingly ascertained that the pulvilli were completely cleaned, and in a fit state to act, they walked or flew away. I do not give this fact as in itself of much weight; but taken in combination with those I had before observed and recorded in the note above referred to, it tends to confirm the supposition there started, as the mere cleansing of the tarsi themselves from dust could scarcely have required so long a process, and interrupted by so many apparent trials of its effect on the pulvilli. My main reason, however, for bringing it

